COLORADO RIVER RECOVERY PROGRAM
FY 2012 ANNUAL PROJECT REPORT

RECOVERY PROGRAM
PROJECT NUMBER: 128

I. Project Title: Abundance Estimates for Colorado pikeminnow in the Green River Basin, Utah and Colorado

II. Bureau of Reclamation Agreement Number(s): R09AP40861 / 09-FG-40-2861

Project/Grant Period: Start date (Mo/Day/Yr): 1 October 2010
End date: (Mo/Day/Yr): 30 Sept. 2014
Reporting period end date: 30 Sept. 2012
Is this the final report? Yes _____ No _X___

III. Principal Investigator(s):

Kevin Bestgen (Lead)/ John Hawkins/ Gary White/ Cameron Walford
Larval Fish Laboratory
Department of Fish, Wildlife, and Conservation Biology
Colorado State University
Ft. Collins, CO 80523
voice: KRB (970) 491-1848, JAH (970) 491-2777
fax: (970) 491-5091
email: kbestgen@colostate.edu , jhawk@lamar.colostate.edu,

Matt Breen
Utah Division of Wildlife Resources
152 East 100 North
Vernal, UT 84078
voice: (435) 781-5315
fax: (435) 789-8343
email: MattBreen@Utah.gov

Tildon Jones, Aaron Webber
USFWS
Colorado River Fishery Project
1380 S. 2350 W.
Vernal, Utah 84078 (Jones)
Phone: (435) 789-0354
Email: Tildon_Jones@fws.gov

Julie Howard
Utah Division of Wildlife Resources
1165 So. Hwy 191, Ste 4
Moab, UT 84532
email: JulieHoward@Utah.gov

IV. Abstract: Sampling conducted during this project is designed to obtain capture-recapture data needed to estimate abundance of Colorado pikeminnow, *Ptychocheilus lucius*, in the lower Yampa and lower White rivers and the Green River downstream of Whirlpool Canyon exclusive of Split Mountain Canyon. Abundance estimates of endangered Colorado pikeminnow are needed to better monitor population status and provide benchmarks against which progress toward recovery can be measured. This project is designed to have three years (2011–2013) of sampling followed by a year of data analysis and report writing. The design is essentially the same as that employed for sampling conducted from 2000–2003 and 2006–2008 in the same area (Bestgen et al. 2005, Bestgen et al. 2010). Sampling during this study began in spring 2011, and will continue in 2013, with the Colorado Parks and Wildlife (CPW) and the Larval Fish Laboratory responsible for sampling the Yampa River, the U. S. Fish and Wildlife Service (USFWS), Vernal, Utah, and Grand Junction, Colorado, responsible for the reach of the Green River from the White River downstream to Tusher Diversion and the lower White River, and the Utah Division of Wildlife Resources (UDWR) responsible for the Green River reaches from lower Whirlpool Canyon to the White River confluence and from Tusher Diversion downstream to the Colorado River. The Larval Fish Laboratory will provide coordination, data checking, and data analysis. Our primary goal was to capture, mark, and recapture as many Colorado pikeminnow as possible on at least three different sampling occasions in each river reach. Sampling occurred during spring runoff and mostly ended before Colorado pikeminnow spawning migration. Electrofishing was the primary sampling gear. Captured Colorado pikeminnow were scanned for the presence of a Passive Integrated Transponder (PIT) tag, and unmarked fish were marked. These data were used to obtain abundance estimates for each river reach. A report detailing results of sampling and parameter estimation for 2006–2008 data was submitted and approved in April 2010; a summary of data collected in 2012 is provided below and more comprehensive estimates of Colorado pikeminnow abundance and survival will be completed after data collection in 2013..

V. Study Schedule: Initial Year 2011
Final year 2014

VI. Relationship to RIPRAP:

Monitor populations and habitat and conduct research to support recovery actions (research, monitoring, and data management)

V.B. Conduct research to acquire needed life history information

V.B.2. Conduct appropriate studies to provide needed life history information.

VII. Accomplishment of FY 2012 Tasks and Deliverables, Discussion of Initial Findings and Shortcomings:

Because of the complexity and short duration of the sampling design, and the need to use five relatively autonomous units to complete this work, we developed and used a Standard Operating Procedure for field personnel to ensure a consistent sampling approach and timely completion of tasks. We also developed spreadsheets for data entry that should streamline that process somewhat. We also had a conference call with team members and field crews to discuss issues and problems as well as several other calls to individual investigators through the field season. This also provided an opportunity for each group to report on progress in completing preparations for field sampling. The Larval Fish Laboratory will be responsible for routine coordination of the study.

We completed a minimum of three sampling passes through the five Green River Basin reaches listed below to capture sub-adult and adult Colorado pikeminnow:

a) Green River between the confluence of the White River upstream to the lower end of Whirlpool Canyon (i.e., upper Rainbow Park, but not Split Mtn. Canyon).

b) White River between the confluence of the Green River upstream to Taylor Draw Dam,

c) Yampa River between Deerlodge Park and Craig, excluding Cross Mountain Canyon,

d) Green River from the White River confluence downstream to near Green River, Utah, and,

e) Green River from downstream of Green River, Utah, to the confluence with the Colorado River.

The LFL and CPW attempted up to eight sampling passes in portions of the Yampa River, in part associated with smallmouth bass and northern pike removal projects, in order to obtain a more precise and accurate Colorado pikeminnow abundance estimate and the USFWS completed four sampling passes in the Desolation-Grey Canyon reach of the Green River. Data were grouped under three passes for all reaches to accommodate the need for symmetrical capture histories among reaches. Specific responsibilities and reaches are outlined below (Table 1).

One significant challenge that was not overcome in spring 2012 was a permit from the Ute Indian Tribe of the Uintah and Ouray Indian Reservation to sample the lower White River.

Preliminary analysis of 2011 Colorado pikeminnow capture data suggested fewer fish captured and recaptured than in the past. A total of 774 fish were captured and recaptured during 2011, which included Colorado pikeminnow of all sizes that were tagged. Final estimates await addition of data from 2012 and 2013, but the number of Colorado pikeminnow captured in 2011 suggests a decline in

abundance of the Green River population of Colorado pikeminnow since 2008. Length frequency histograms for Colorado pikeminnow captured in 2011 (Figure 1) suggested that some smaller Colorado pikeminnow occurred in the study area, particularly the lower Green River. It is postulated that those relatively small fish recruited from year-classes produced in 2009 and 2010.

Even lower numbers of Colorado pikeminnow were captured in 2012, compared to 2011, when only 425 Colorado pikeminnow of all sizes were captured or recaptured. Captures were particularly low in the Yampa River, where only six Colorado pikeminnow were captured, in spite of high effort associated with northern pike and smallmouth bass removal sampling, as well as regular Colorado pikeminnow sampling passes (up to eight sampling passes). No Colorado pikeminnow were recaptured among the sampling passes completed this year for either the Yampa River or middle Green River. Relatively low water levels in all study reaches were thought to limit access to flooded shorelines and tributary mouths by sampling crews, which may have limited capture numbers. Sampling in 2013 needs to focus on times of the year when optimal sampling conditions exist (e.g., when good habitat is available), so that the number of Colorado pikeminnow sampled can be increased.

VIII. Recommendations: Continue study as planned in 2013 with emphasis on understanding better how to capture and recapture additional Colorado pikeminnow throughout the study area.

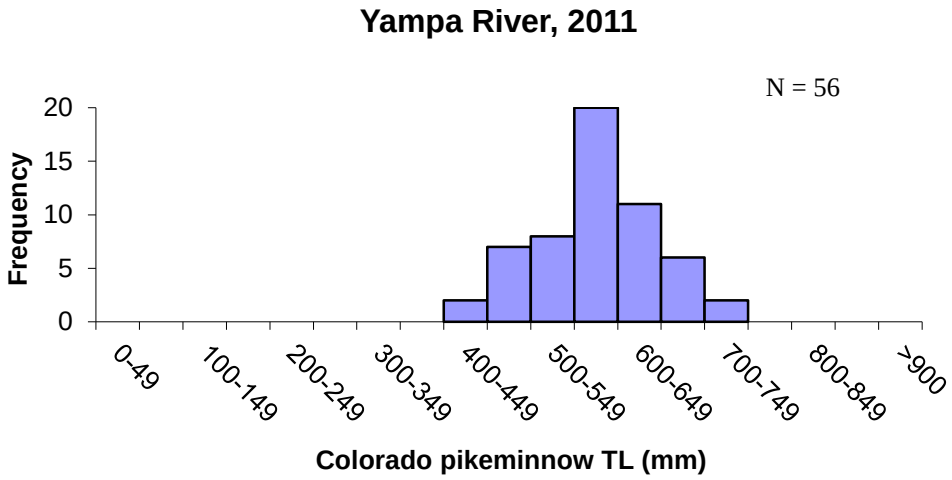
IX. Project Status: On track and ongoing.

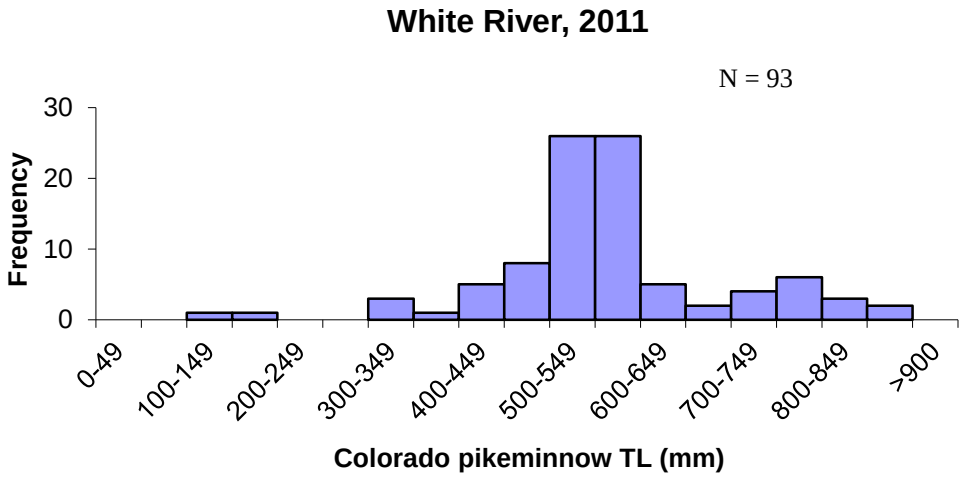
X. FY 2012 Budget Status

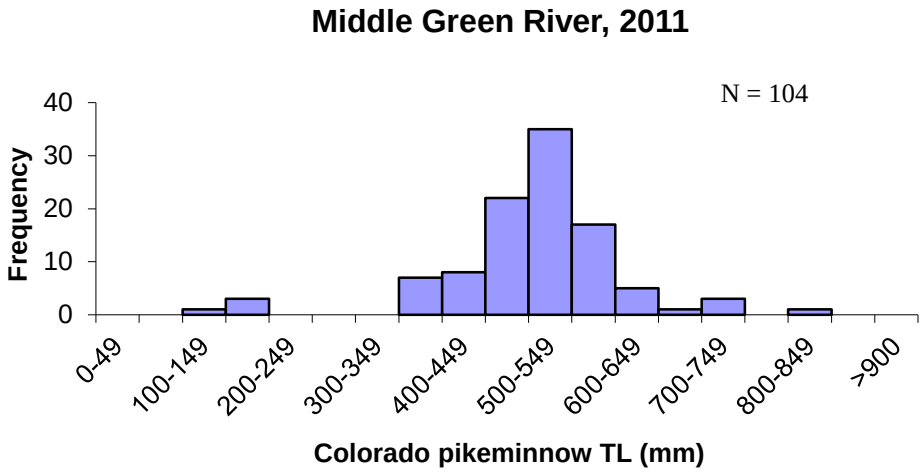
A. Funds Provided: 391,165
B. Funds Expended: 360,213
C. Difference: 30,952
D. Work completed, 90%, LFL needs to proof data sheets and prepare data for analysis.
E. Recovery Program funds spent for publication charges: None

XI. Status of Data Submission (Where applicable): Each agency submits data independently and to the Larval Fish Laboratory, for analysis. This has occurred.

XII. Signed: Kevin Bestgen 7 November 2012
Principal Investigator Date
(Just put name and date here, since you will be submitting the report electronically)


Yampa River, 2011
N = 56
Frequency
20
15
10
5
0
0-49
100-149
200-249
300-349
400-449
500-549
600-649
700-749
800-849
>900
Colorado pikeminnow TL (mm)


White River, 2011
N = 93
Frequency
30
20
10
0
0-49
100-149
200-249
300-349
400-449
500-549
600-649
700-749
800-849
>900
Colorado pikeminnow TL (mm)


Middle Green River, 2011
N = 104
Frequency
40
30
20
10
0
0-49
100-149
200-249
300-349
400-449
500-549
600-649
700-749
800-849
>900
Colorado pikeminnow TL (mm)

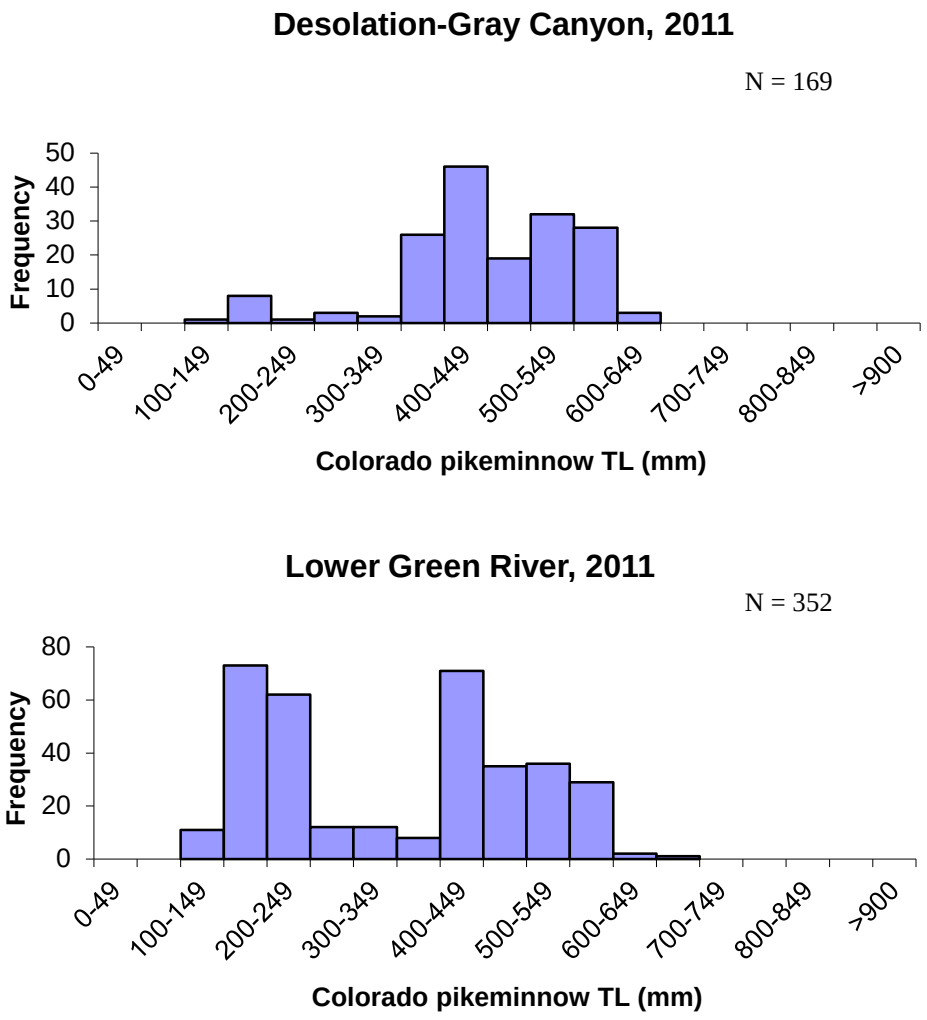


Figure 1. Length frequency histograms for Colorado pikeminnow captured in five reaches of the Green River Basin, Utah and Colorado, 2011.

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

BUREAU OF RECLAMATION AGREEMENT NUMBER: _R09AP40861 / 09-FG-40-2861_

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: _128_

Project Title: Abundance Estimates for Colorado pikeminnow in the Green River Basin, Utah and Colorado

Principal Investigator: Kevin Bestgen (Lead)/ John Hawkins/ Gary White/Cameron Walford
Larval Fish Laboratory
Department of Fish, Wildlife, and Conservation Biology
Colorado State University
Ft. Collins, CO 80523
voice: KRB (970) 491-1848, JAH (970) 491-2777
fax: (970) 491-5091
email: kbestgen@colostate.edu , jhawk@lamar.colostate.edu,

Project/Grant Period: Start date (Mo/Day/Yr): 1 October 2010
End date: (Mo/Day/Yr): 30 Sept. 2014
Reporting period end date: 30 Sept. 2012
Is this the final report? Yes _____ No _X___

Performance: Sampling passes were completed in the Yampa River portion of the Green River Basin study area by the Larval Fish Laboratory. We tagged and released Colorado pikeminnow in accordance with specified protocols which will contribute to abundance estimates for pikeminnow of three life stages in the Green River Basin from 2011-2013. We also summarized data from the four other entities that contributed capture information for this sampling effort (see attached report.

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

BUREAU OF RECLAMATION AGREEMENT NUMBER: __R09AP40849__

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: _128_

Project Title: Abundance Estimates of Colorado pikeminnow in the Green River Basin, Utah and Colorado

Principal Investigator: Julie Howard
1165 S Hwy 191 Suite 4
Moab, UT 84532
juliehoward@utah.gov
435-259-3781

Project/Grant Period: Start date: October 1, 2008
End date: April 30, 2015
Reporting period end date: September 30, 2012
Is this the final report? Yes _____ No _X__

Performance: Three sampling passes were successfully completed (5/6/12-5/13/12, 5/22/12-5/30/12, 6/6/12-6/14/12) on the lower Green River section from Green River, UT (RM 120.0) to the confluence with the Colorado River (RM 0.0). Tasks 1-3 were completed. A total of 119 Colorado pikeminnow were captured (38 recaptures) and PIT tagged when necessary. Total length ranged from 170 mm to 765 mm with a mean total length of 471±133 mm. A total of 720 razorback suckers were captured (666 recaptures) and PIT tagged when necessary. Total length ranged from 248 mm to 540 mm with a mean total length of 416±45 mm. Data were formatted and sent to PI in September of 2012.

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

BUREAU OF RECLAMATION AGREEMENT NUMBER: R09AP40849

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: 128

Project Title: Abundance Estimates of Colorado pikeminnow in the Green River Basin, Utah and Colorado

Principal Investigator: Joseph A. Skorupski Jr., Matthew J. Breen
318 North Vernal Ave.
Vernal, UT 84078
voice: (435) 219-6525
fax: (435) 789-8343
email: jskorupski@utah.gov; MattBreen@Utah.gov

Project/Grant Period: Start date: October 1, 2008
End date: April 30, 2015
Reporting period end date: September 30, 2012
Is this the final report? Yes _____ No X

Performance: Three sampling passes were successfully completed (3/6/12-4/26/12, 4/30/12-5/7/12, 5/8/12-5/17/12) on the middle Green River section from the lower end of Whirlpool Canyon (RM 334.0) to the confluence with the White River (RM 246.1). Tasks 1-3 were completed. A total of 52 Colorado pikeminnow were captured (31 recaptures) and PIT tagged when necessary. Total length ranged from 152 mm to 733 mm with a mean total length of 516 mm. A total of 160 razorback suckers were captured (145 recaptures) and PIT tagged when necessary. Total length ranged from 305 mm to 578 mm with a mean total length of 421 mm. Data were formatted and sent to PI in October of 2012.

ANNUAL PERFORMANCE PROGRESS REPORT (PPR)

BUREAU OF RECLAMATION AGREEMENT NUMBER: R10PG40082

UPPER COLORADO RIVER RECOVERY PROGRAM PROJECT NUMBER: 128

Project Title: Abundance Estimates for Colorado pikeminnow in the Green River Basin, Utah and Colorado

Principal Investigator: M. Tildon Jones
U.S. Fish & Wildlife Service
Colorado River Fish Project
1380 S 2350 W
Vernal, Utah 84078
Phone: 435-789-0351
E-mail: tildon_jones@fws.gov

Project/Grant Period: Start date (Mo/Day/Yr): 10/01/2006
End date: (Mo/Day/Yr): 09/30/2012
Reporting period end date (Mo/Day/Yr): 9/30/2012
Is this the final report? Yes __X___ No ____

Performance: USFWS completed portions of tasks 1-5 assigned to the Vernal office for both the White and Green Rivers. For the Green River estimate, we completed 4 passes from Ouray to Green River, UT between 27 March and 27 May 2012. For the White River, we completed 3 passes from Taylor Draw dam to the Enron boat ramp between 9 April and 4 May 2012. All pikeminnow captured were scanned for PIT tags and a new PIT tag implanted, if needed. We were also able to capture other endangered species, including humpback chub and razorback sucker, during sampling, and these captures were added to the data. In addition, nonnative species of concern (i.e., smallmouth bass, walleye) were removed when encountered. All data have been compiled and sent to CSU-LFL for analysis.

Appendix I. Sampling dates, capture data, and effort for middle Green River, Yampa River, and White River abundance estimation sampling for Colorado pikeminnow, 2012. Electrofishing effort includes main channel and backwater sampling associated with trammel nets. Sampling passes greater in number than three were grouped for analysis purposes; greater than three sampling passes occurred in the Yampa River and the Desolation-Gray Canyon reach of the Green River.

	Dates	Days Sampled	River km Sampled	Electrofishing Effort (hours) [1]	Fyke net (hours)	Pikeminnow Captured [2]	Pikeminnow Recaptured [3]
Middle Green River							
Pass 1	March 5 - April 26	31	538-396	89	1545	23	0
2	April 30 - May 7	5	538-396	45	0	15	0
3	May 8 - 17	5	538-396	46	0	14	0
Total		41		180	1545	52	0
Yampa River							
Pass 1	April 17 - May 8	12	216-77	114	0	2	0
2	May 7 - May 20	12	216-78	134	0	1	0
3	May 15 - June 7	14	216-77	151	0	3	0
Total		38		399	0	6	0
White River							
Pass 1	April 9 - 20	6	166-40	51	0	22	0
2	April 23 - 26	4	167-40	54	0	24	3
3	April 27 - June 7	18	167-40	189	0	50	10
Total		28		294		96	13

[1] Some reaches had additional effort and/or passes that were combined with one of the three standard sampling passes.
[2] All PIT tagged Colorado pikeminnow.
[3] Recaptured fish are those handled on previous sampling passes in 2012.

Appendix I continued.

	Dates	Days Sampled	River km Sampled	Electrofishing Effort (hours)[1]	Fyke net (hours)	Pikeminnow Captured [2]	Pikeminnow Recaptured [3]
Desolation-Gray							
Pass 1	March 27 - April 10	8	396-207	68	0	39	0
2	April 10 - May 14	16	396-207	134	0	68	1
3	May 17 - May 27	7	396-207	57	0	47	2
Total		31		259	0	154	3
Lower Green River							
Pass 1	May 6 - 14	9	193-0	66	0	58	0
2	May 22 - 30	9	193-0	70	0	37	3
3	June 6 - 14	9	193-0	76	0	22	3
Total		27		212	0	117	6

[1] Some reaches had additional effort and/or passes that were combined with one of the three standard sampling passes.
[2] All PIT tagged Colorado pikeminnow.
[3] Recaptured fish are those handled on previous sampling passes in 2012.